


PATENT COOPERATION TREATY
PCT
INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 11344P5 WO/KTC	FOR FURTHER ACTION		See Form PCT/PEA/416
International application No. PCT/GB2005/000024	International filing date (<i>day/month/year</i>) 07.01.2005	Priority date (<i>day/month/year</i>) 30.01.2004	
International Patent Classification (IPC) or national classification and IPC A01N25/00, A01N47/02			
Applicant RECKITT BENCKISER (AUSTRALIA) PTY LIMITED et al.			
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p style="margin-left: 20px;">a. <input checked="" type="checkbox"/> <i>sent to the applicant and to the International Bureau</i>) a total of 4 sheets, as follows:</p> <p style="margin-left: 40px;"><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p style="margin-left: 40px;"><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p style="margin-left: 20px;">b. <input type="checkbox"/> <i>(sent to the International Bureau only)</i> a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>			
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>			
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**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

10/587112
AP2005/000024 24 JUL 2006
International application No.
PCT/GB2005/000024

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages

1-42 as originally filed

Claims, Numbers

1-57 filed with telefax on 09.11.2005

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT
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International application No.
PCT/GB2005/000024

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-57
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	1-57
Industrial applicability (IA)	Yes: Claims	1-57
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

**INTERNATIONAL PRELIMINARY
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(SEPARATE SHEET)**

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Re Item I**Basis of the report**

The documents mentioned herein are numbered in accordance with the order they appear in the International Search Report.

Re Item V**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

The present invention relates to the control of parasites (e.g. fleas) by using a bait for rodents containing a systemic insecticide (fipronil) to kill the parasite and a rodenticide from a list (see the present claim 1) to kill the host rodent and prevent the spreading out of the parasite population.

The present application fulfills the criteria of Article 33(2) PCT, because the claimed subject-matter is new with respect to the prior art as defined in Rule 64(1) to (3) PCT: none of the cited prior art documents disclose the specific combination of the rodenticides according to the present claim 1 with fipronil.

D1 discloses the principle of incorporating in a rodent bait a systemic insecticide e.g. fipronil for controlling ectoparasites on e.g. rats and further indicates that the simultaneous use of a rodenticide improves the control of the diffusion of the ectoparasites.

The purpose of citing D2 was only to have a list of alternative compounds known for their rodenticidal activity. The purpose of D2 was not to kill rodents, but its teaching is not limited thereto: D2 clearly provides a list (paragraph 145) of compounds which are known to kill rodents.

D3 (the closest prior art) discloses the simultaneous use of a systemic insecticide against parasites like fleas and of a rodenticide in a rodent bait to efficiently kill both insects and rodents to control plague. Fipronil is used as systemic insecticide and specifically bromadiolone is used as a rodenticide in the described tests. The palatability problem is addressed as critical for the uptake of the baits.

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The exclusion from the present claims of bromadiolone as a possible rodenticide distinguishes the present application from D3 with respect to the question of novelty. However, the meaning of this difference has no clear consequences on a supposed contribution to the art. It appears that the teaching of D3 has been broadened and that the specific teaching of D3 has then been excluded. The present invention is therefore nothing more than an alternative to the art, where a rodenticide has been replaced by a list of alternative rodenticides.

The amount of fipronil has seemingly to be lower than 200 ppm in the bait for avoiding toxicosis in rodents. Such a consequence however is strictly speaking dependent on the dose ingested by the rodent in mg/kg of the rodent rather than on the concentration in the bait: it depends how much bait is eaten and such a toxicosis depending on the sole fipronil concentration has not been substantiated. Moreover, the rodent is simultaneously supposed to ingest a lethal dose of rodenticide so that the question of the rodent ignoring the bait at a later time is not relevant.

The conclusion of D3 as to palatability did not relate to the bait as a whole, i.e. to the repelling impact of the pesticides used. It rather concerned the bait base used, which was a very basic one. Anyway, the skilled artisan knows that the pesticides mostly have repelling effects impairing the level of killing. He would have adapted the composition of the bait so as to minimize the pesticidal content while maintaining an acceptable killing level (be it for environmental or economic reasons). He would also have used a bait base, optionally with attractants/feeding stimulants, which is as attractive as possible for the specific rodent(s) to be treated. Therefore, the criteria of Article 33(3) PCT are not fulfilled because the subject-matter of the present claims 1-57 does not involve any inventive step.

The present invention fulfills the criteria of Article 33(4) PCT, because the subject-matter of the present claims 1-57 is industrially applicable.

CLAIMS:

1. Use of an effective amount of a rodenticide selected from the group consisting of brodifacoum, difethialone, flocoumafen and mixtures thereof and an insecticidally effective amount up to 200ppm of fipronil in the manufacture of a bait composition to provide a lethal effect on fleas and a host rodent thereof following ingestion of the bait composition by the host rodent.
2. Use according to claim 1 wherein the amount of fipronil is at least 1 ppm.
3. Use according to claim 1 wherein the amount of fipronil is at least 2 ppm.
4. Use according to claim 1 wherein the amount of fipronil is at least 10 ppm.
5. Use according to claim 1 wherein the amount of fipronil is at least 40 ppm.
6. Use according to claim 1 wherein the amount of rodenticide is from 10 to 250 ppm.
7. Use according to claim 1 wherein the amount of rodenticide is from 20 to 100 ppm.
8. Use according to claim 1 wherein the amount of rodenticide is from 25 ppm to 50 ppm.
9. Use according to any one of claims 1 to 8 wherein the rodenticide is selected from the group consisting of brodifacoum and difethialone.
10. Use according to any one of claims 1 to 5 wherein the rodenticide is brodifacoum and the amount of rodenticide is about 50 ppm.
11. Use according to any one of claims 1 to 5 wherein the rodenticide is difethialone and the amount of rodenticide is about 25 ppm.
12. Use of an effective amount of a rodenticide selected from the group consisting of brodifacoum, difethialone, flocoumafen and mixtures thereof and an acaricidally effective amount up to 200ppm of fipronil in the manufacture of a bait composition to provide a lethal effect on ticks and a host rodent thereof following ingestion of the bait composition by the host rodent.
13. Use according to claim 12 wherein the amount of fipronil is at least 10 ppm.
14. Use according to claim 12 wherein the amount of fipronil is at least 15 ppm.
15. Use according to claim 12 wherein the amount of fipronil is at least 25 ppm.
16. Use according to claim 12 wherein the amount of fipronil is at least 40 ppm.
17. Use according to claim 12 wherein the amount of rodenticide is from 10 to 250 ppm.
18. Use according to claim 12 wherein the amount of rodenticide is from 20 to 100 ppm.
19. Use according to claim 12 wherein the amount of rodenticide is from 25 ppm to 50 ppm.

20. Use according to any one of claims 12 to 19 wherein the rodenticide is selected from the group consisting of brodifacoum and difethialone.
21. Use according to any one of claims 12 to 16 wherein the rodenticide is brodifacoum and the amount of rodenticide is about 50 ppm.
- 5 22. Use according to any one of claims 12 to 16 wherein the rodenticide is difethialone and the amount of rodenticide is about 25 ppm.
23. A rodenticidal bait composition comprising:
an insecticidally effective amount up to 200 ppm of fipronil;
an effective amount of a rodenticide selected from the group consisting of
10 brodifacoum, difethialone, flocoumafen and mixtures thereof; and
at least one feeding stimulant.
24. A composition according to claim 23 comprising, by weight:
at least 0.0001% fipronil;
from 0.001 to 0.025% rodenticide; and
15 50 to 99.999% of at least one feeding stimulant.
25. A composition according to claim 24 comprising at least 0.0002% by weight fipronil.
26. A composition according to claim 24 or 25 comprising from 0.002 to 0.010% by weight rodenticide.
- 20 27. A composition according to claim 24 or 25 comprising from 0.0025 to 0.0050% by weight rodenticide.
28. A composition according to any one of claims 24 to 27 wherein the rodenticide is selected from the group consisting of brodifacoum and difethialone.
29. A composition according to claim 24 or 25 wherein the rodenticide is
25 brodifacoum and the composition comprises about 0.0050% by weight brodifacoum.
30. A composition according to claim 24 or 25 wherein the rodenticide is difethialone and the composition comprises about 0.0025% by weight difethialone.
31. A rodenticidal bait composition comprising:
an acaricidally effective amount up to 200 ppm of fipronil;
30 an effective amount of a rodenticide selected from the group consisting of brodifacoum, difethialone, flocoumafen and mixtures thereof; and
at least one feeding stimulant.
32. A composition according to claim 31 comprising, by weight:
at least 0.001% fipronil;
35 from 0.001 to 0.025% rodenticide; and
50 to 99.998% of at least one feeding stimulant.
33. A composition according to claim 31 or 32 comprising at least 0.0015% by weight fipronil.

34. A composition according to claim 31 or 32 comprising at least 0.0025% by weight fipronil .
35. A composition according to claim 31 or 32 comprising at least 0.0040% by weight fipronil .
- 5 36. A composition according to any one of claims 31 to 35 comprising from 0.002 to 0.010% by weight rodenticide.
37. A composition according to any one of claims 31 to 35 comprising from 0.0025 to 0.0050% by weight rodenticide.
38. A composition according to any one of claims 31 to 37 wherein the rodenticide
10 is selected from the group consisting of brodifacoum and difethialone.
39. A composition according to any one of claims 31 to 35 wherein the rodenticide brodifacoum and the composition comprises about 0.0050% by weight brodifacoum.
40. A composition according to claim any one of claims 31 to 35 wherein the rodenticide is difethialone and the composition comprises about 0.0025% by weight
15 difethialone.
41. A composition according to any one of claims 23 to 40 further comprising at least one attractant.
42. A composition according to any one of claims 23 to 41 further comprising one or more insecticidally and rodenticidally compatible excipients and/or adjuvants
20 selected from the group consisting of dye, bittering agent, solvent, flow agent, binder, weatherability enhancer and preservative.
43. A composition according to any one of claims 23 to 42 wherein the feeding stimulant is one or more items selected from the group consisting of:
25 whole and processed seeds including cereal grains; sugar and sugar products; honey; meat and meat products including blood and fat; dairy products; eggs and egg products including shell and yolk; starch; whole and processed nuts; and vegetable oils.
44. A composition according to claim 43 wherein the feeding stimulant is one or more items selected from the group consisting of:
30 whole and processed seeds including cereal grains; sugar and sugar products; starch; whole and processed nuts; and vegetable oil.
45. A rodenticidal bait composition comprising approximately by weight,:
0.004 % fipronil:
0.005 % brodifacoum; and
35 50 to 99.7 % of at least one feeding stimulant.
46. A rodenticidal bait composition comprising approximately by weight,:
0.004 % fipronil:
0.0025 % difethialone; and

50 to 99.7 % of at least one feeding stimulant.

47. A method of killing ticks and a host rodent thereof, comprising providing for ingestion to said rodent, a bait composition comprising an effective amount of a rodenticide selected from the group consisting of brodifacoum, difethialone, 5 floccoumafen and mixtures thereof, and an acaricidally effective amount up to 200ppm of fipronil .
48. A method according to claim 47 wherein the bait composition provided for ingestion by said rodent comprises at least 10 ppm fipronil.
49. A method according to claim 47 wherein the bait composition provided for 10 ingestion by said rodent comprises at least 15 ppm fipronil.
50. A method according to claim 47 wherein the bait composition provided for ingestion by said rodent comprises at least 25 ppm fipronil.
51. A method according to claim 47 wherein the bait composition provided for ingestion by said rodent comprises at least 40 ppm fipronil.
- 15 52. A method according to claim 47 wherein the bait composition provided for ingestion by said rodent comprises from 10 to 250 ppm rodenticide.
53. A method according to claim 47 wherein the bait composition provided for ingestion by said rodent comprises from 20 to 100 ppm rodenticide.
- 54 A method according to claim 47 wherein the bait composition provided for 20 ingestion by said rodent comprises from 25 ppm to 50 ppm rodenticide.
55. A method according to any one of claims 47 to 54 wherein the bait composition provided for ingestion by said rodent comprises a rodenticide selected from brodifacoum and difethialone.
56. A method according to any one of claims 47 to 51 wherein the bait 25 composition provided for ingestion by said rodent comprises a rodenticide selected from brodifacoum in an amount of about 50 ppm.
57. A method according to any one of claims 47 to 51 wherein the bait composition provided for ingestion by said rodent comprises a rodenticide selected from difethialone in an amount of about 25 ppm.

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